(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
11 March 2004 (11.03.2004)

PCT

(10) International Publication Number
WO 2004/020665 A3

(51) International Patent Classification[7]: C12Q 1/68, C12N 9/10, G01N 33/53, A01K 67/027, A61P 25/00

(21) International Application Number: PCT/EP2003/009437

(22) International Filing Date: 26 August 2003 (26.08.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
02019281.1 28 August 2002 (28.08.2002) EP
60/406,303 28 August 2002 (28.08.2002) US

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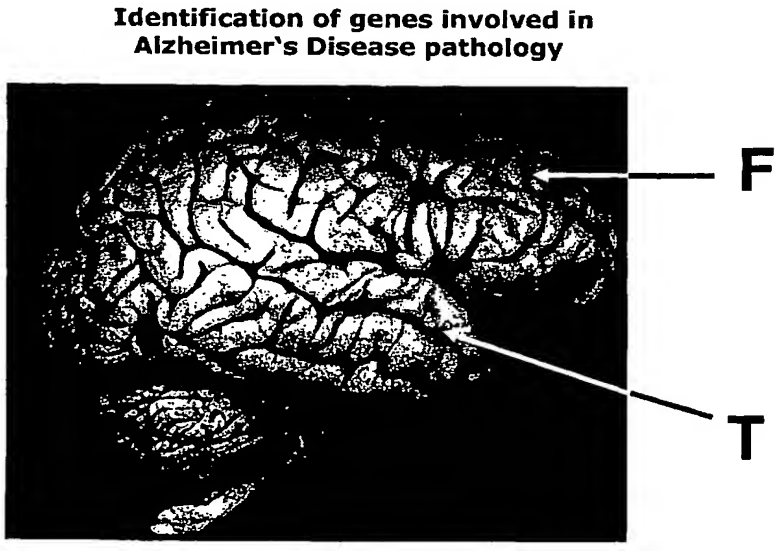
(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— *with international search report*

[Continued on next page]

(54) Title: DIAGNOSTIC AND THERAPEUTIC USE OF FOAP-13 POLYNUCLEOTIDES AND POLYPEPTIDES FOR NEURODEGENERATIVE DISEASES



(57) Abstract: The present invention discloses the dysregulation of foap-13 gene expression in specific brain regions of Alzheimer's disease patients. Based on this finding, the invention provides a method for diagnosing or prognosticating Alzheimer's disease in a subject, or for determining whether a subject is at increased risk of developing Alzheimer's disease. Furthermore, this invention provides therapeutic and prophylactic methods for treating or preventing Alzheimer's disease and related neurodegenerative disorders using foap-13 polynucleotides and polypeptides. A method of screening for modulating agents of neurodegenerative diseases is also disclosed.

WO 2004/020665 A3

(88) Date of publication of the international search report:
2 September 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP 03/09437

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C12Q1/68 C12N9/10 G01N33/53 A01K67/027 A61P25/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 C12Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, WPI Data, PAJ, BIOSIS, EMBASE, MEDLINE, Sequence Search

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 01/49879 A (OERNTOFT TORBEN F ;THYKJAER THOMAS (DK); AROS APPLIED BIOTECHNOLOG) 12 July 2001 (2001-07-12) See page 21, page 25 (PRO1659) and page 57; claims 27-25. & "UniGene Cluster Hs. 274453; EEG1"[Online] Retrieved from the Internet: URL:http://www.ncbi.nlm.nih.gov:80/UniGene /clust.cgi?ORG=Hs&CID=274453&MAXEST=199> [retrieved on 2003-07-21]	3,10-13
X	DATABASE GENESEQ [Online] EBI; HUMAN POLYPEPTIDE SEQ. ID NO. 1861 22 October 2001 (2001-10-22), XP002269445 Database accession no. AAM38716 abstract	3,5, 10-13

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[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

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"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
25 February 2004	18. 06. 2004

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Hagenmaier, S

Form PCT/ISA/210 (second sheet) (January 2004)

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	-& WO 01/53312 A (HYSEQ) 26 July 2001 (2001-07-26) page 1 - page 98; claims 1-28	

X	DATABASE GENESEQ [Online] EBI; LAL ET AL.: "Human membrane associated protein MEMAP-12" XP002270793 Database accession no. AAB74706 abstract -& WO 01/12662 A (INCYTE GENOMICS INC ;PATTERSON CHANDRA (US); AZIMZAI YALDA (US); Y) 22 February 2001 (2001-02-22) See Seq. IDs 12 and 49 the whole document	3,5, 10-13

X	STUART R O ET AL: "EEG1, a putative transporter expressed during epithelial organogenesis: comparison with embryonic transporter expression during nephrogenesis." AMERICAN JOURNAL OF PHYSIOLOGY. RENAL PHYSIOLOGY. UNITED STATES DEC 2001, vol. 281, no. 6, December 2001 (2001-12), pages F1148-F1156, XP002247125 ISSN: 0363-6127 the whole document	3,10,11

X	[Online] HYPOTHETICAL PROTEIN, FOAP-13 XP002247127 retrieved from SWALL Database accession no. Q9NSS4 abstract	10,11

A	EP 1 188 839 A (EVOTEC NEUROSCIENCES GMBH) 20 March 2002 (2002-03-20) the whole document	

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP 03/09437

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	"Consensus report of the Working Group on: "Molecular and Biochemical Markers of Alzheimer's Disease". The Ronald and Nancy Reagan Research Institute of the Alzheimer's Association and the National Institute on Aging Working Group." NEUROBIOLOGY OF AGING. UNITED STATES 1998 MAR-APR, vol. 19, no. 2, March 1998 (1998-03), pages 109-116, XP002233088 ISSN: 0197-4580 the whole document -----	
A	LI M S ET AL: "Human eosinophil major basic protein, a mediator of allergic inflammation, is expressed by alternative splicing from two promoters." THE BIOCHEMICAL JOURNAL. ENGLAND 1 FEB 1995, vol. 305 (Pt 3), 1 February 1995 (1995-02-01), pages 921-927, XP002057386 ISSN: 0264-6021 the whole document -----	

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP 03/09437

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. [X] Claims Nos.: 7,8
because they relate to subject matter not required to be searched by this Authority, namely:

Rule 39.1(iv) PCT - Method for treatment of the human or animal body by therapy

2. [X] Claims Nos.: 4
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

see FURTHER INFORMATION sheet PCT/ISA/210

3. [ ] Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. [ ] As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. [ ] As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. [ ] As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. [X] No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-8, 10-13 (all completely)

Remark on Protest

[ ] The additional search fees were accompanied by the applicant's protest.

[ ] No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.1

Claims Nos.: 7,8

Rule 39.1(iv) PCT - Method for treatment of the human or animal body by therapy

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Continuation of Box I.2

Claims Nos.: 4

Present claim 4 relates to a product defined by reference to a desirable characteristic or property, namely being a modulator of an activity or a level of at least one substance selected from the group listed in claim 4 under (i)-(iv). The claim covers all products having this characteristic or property, whereas the application does not provide any support within the meaning of Article 6 PCT and/or disclosure within the meaning of Article 5 PCT for such products. In the present case, the claim so lacks support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Independent of the above reasoning, the claim also lacks clarity (Article 6 PCT). An attempt is made to define the product by reference to a result to be achieved. Again, this lack of clarity in the present case is such as to render a meaningful search impossible. Consequently, no search has been carried out for claim 4.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.5), should the problems which led to the Article 17(2) declaration be overcome.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-8,10-13 (all completely)

Methods of diagnosing or prognosticating a neurodegenerative disease comprising determining the level and/or activity of a transcription/translation product of the foap-13 gene in a sample; a kit for diagnosing or prognosticating a neurodegenerative disease comprising at least one reagent that selectively detects a transcription/translation product of the foap-13 gene; a recombinant non-human animal comprising a non-native gene sequence coding for foap-13; an assay for screening for a modulator of a neurodegenerative disease using the foap-13 gene or a transcription/ translation product of the foap-13 gene; a protein molecule being a translation product of the foap-13 gene; an antibody specifically immunoreactive with such a translation product; use of an antibody specifically immunoreactive with an immunogen, wherein said immunogen is a translation product of the foap-13 gene, for detecting the pathological state of a cell in a sample from a subject.

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2. claim: 9 (all completely)

An assay for testing a compound, preferably for screening a plurality of compounds to determine the degree of binding of said compounds to foap-13 protein.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/EP 03/09437

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Information on patent family members

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